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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,220	06/16/2006	Atsushi Miyazaki	JFE-06-1129	7655

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EXAMINER	
FOGARTY, CAITLIN ANNE	
ART UNIT	PAPER NUMBER
1733	

NOTIFICATION DATE	DELIVERY MODE
10/15/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pto.phil@dlapiper.com

Office Action Summary	Application No.	Applicant(s)	
	10/583,220	MIYAZAKI ET AL.	
	Examiner	Art Unit	
	CAITLIN FOGARTY	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 September 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *13-33* is/are pending in the application.

4a) Of the above claim(s) *18,19 and 22-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *13-17,20 and 21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on September 15, 2010 has been entered.

Status of Claims

2. Claims 13 – 33 are pending where claim 1 has been amended and claims 18, 19, and 22 – 33 have been withdrawn from consideration. Claims 1 – 12 have been cancelled.

Status of Previous Rejections

3. The 35 U.S.C. 103(a) rejection of claims 13 – 17, 20, and 21 as being unpatentable over Kawabata et al. (US 5,626,694) has been maintained.

The nonstatutory obviousness-type double patenting rejection of claims 13 – 17, 20, and 21 as being unpatentable over claims 1 – 8, 10 – 14, and 16 of copending Application No. 10/512,782 (now US 7,806,993) in view of Kawabata et al. (US 5,626,694) has been maintained.

Priority

4. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 13 – 17, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawabata et al. (US 5,626,694).

With respect to instant claim 13, col. 3 lines 16-28 and lines 36-48, col. 6 line 63-col. 7 line 5, col. 8 lines 35-36, and col. 13 line 60-col. 14 line 67 of Kawabata teach a ferritic Cr-contained steel wherein a cold rolled annealed sheet is annealed, after cold rolling, at a final annealing temperature at 700°C-1300°C which overlaps with the temperature range recited in the instant claim. Kawabata also teaches a specific example of treating the ferritic Cr-contained steel where after cold rolling the sheet is subjected to annealing at 1150°C which is within the range recited in instant claim 13 (col. 13 line 60-col. 14 line 67). In addition, Kawabata teaches a ferritic Cr-contained steel with an overlapping composition with instant claim 13 as seen in the table below.

Element	Instant Claim 13 (mass %)	Kawabata et al. (mass %)	Overlapping Range (mass %)
C	≤ 0.03	≤ 0.01	≤ 0.01
Mn	≤ 5.0	≤ 5	≤ 5
Cr	6 – 40	9 – 50	9 – 40
N	≤ 0.03	≤ 0.02	≤ 0.02
Si	≤ 5	≤ 3	≤ 3
W	2.05 – 6.0	0.1 – 5	2.05 – 5
Fe + Impurities	Balance	Balance	Balance

Kawabata differs from instant claim 13 because it does not specifically teach that the precipitated W is 0.005% to 0.1 mass% or that the average thermal expansion coefficient between 20°C and 800°C is less than about 12.6×10^{-6}/°C. However, since the composition of the ferritic Cr-contained steel of Kawabata overlaps with the

composition of the steel of the instant invention and since the steel of Kawabata is made using a method similar to the method of the instant invention, one of ordinary skill in the art would expect the steel of Kawabata to inherently have a similar amount of precipitated W and a similar average thermal expansion coefficient between 20°C and 800°C. See MPEP 2112.

In regards to instant claim 14, col. 3 lines 36-48 of Kawabata disclose that the ferritic Cr-contained steel may further comprise 0.01-1.0 mass% Nb, 0.01-1.0 mass% Ti, 0.01-1.0 mass% Zr, 0.005-5.0 mass% Al, and 0.01-1.0 mass% V. The compositions of Nb, Ti, Zr, Al, and V in the steel of Kawabata overlap with the compositions of Nb, Ti, Zr, Al, and V recited in instant claim 14.

Regarding instant claim 15, col. 3 lines 36-48 of Kawabata teach that the ferritic steel may further comprise 0.1-5 mass% Mo which overlaps with the range recited in the instant claim.

With respect to instant claims 16, 20, and 21, col. 3 lines 36-48 of Kawabata disclose that the ferritic steel may further comprise less than 5 mass% Ni, 0.1-5 mass% Cu, and 0.1-5 mass % Co. The compositions of Ni, Cu, and Co in the steel of Kawabata overlap with the compositions of Ni, Cu, and Co recited in instant claims 16, 20, and 21.

In regards to instant claim 17, col. 3 lines 36-48 of Kawabata teach that the ferritic steel may further comprise 0.0003-0.01 mass% B which overlaps with the composition of B recited in the instant claim.

Since the claimed compositional ranges of claims 13 – 17, 20, and 21 either overlap or are within the ranges disclosed by Kawabata, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed ferritic Cr-contained steel composition from the ferritic Cr-contained steel composition disclosed by Kawabata because Kawabata teaches the same utility (i.e. materials for automobiles) in the whole disclosed range.

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 13 – 17, 20, and 21 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 – 8, 10 – 14, and 16 of U.S. Patent No. 7,806,993 in view of Kawabata et al. (US 5,626,694). U.S. Patent No. 7,806,993 recites a ferritic Cr-contained steel with a composition that overlaps with the steel of the instant claims. Since the claimed compositional ranges of claims 13-17, 20, and 21 either overlap or are within the ranges disclosed by US 7,806,993, a prima facie case of obviousness exists. See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the claimed ferritic steel composition from the ferritic steel composition disclosed by US 7,806,993 because US 7,806,993 teaches the same utility (i.e. exhaust pipes of automobiles) in the whole disclosed range.

U.S. Patent No. 7,806,993 differs from the instant invention because it does not recite that the cold rolled sheet is annealed, after cold rolling, at a final annealing temperature of 1050 to 1200°C or that the steel has 0.1 mass% or less precipitated W

and an average thermal expansion coefficient between 20°C and 800°C of less than about $12x10^{-6}$/°C. However, Kawabata teaches a method of treating a ferritic Cr-contained steel with a composition that overlaps with the steel composition recited in US 7,806,993 that includes annealing the steel, after cold rolling, at a final annealing temperature at 700°C-1300°C which overlaps with the temperature range recited in the instant claim. Kawabata also teaches a specific example of treating the ferritic Cr-contained steel where after cold rolling the sheet is subjected to annealing at 1150°C which is within the range recited in the instant invention (see col. 3 lines 16-28 and lines 36-48, col. 6 line 63-col. 7 line 5, col. 8 lines 35-36, and col. 13 line 60-col. 14 line 67 of Kawabata). It would have been obvious to one of ordinary skill in the art to treat the ferritic steel of US 7,806,993 using the method disclosed by Kawabata in order to improve the corrosion resistance of the steel and because the steels have the same utility of materials for automobiles. Therefore, since the composition of the ferritic Cr-contained steel of US 7,806,993 in view of Kawabata overlaps with the composition of the steel of the instant invention and since the steel of US 7,806,993 in view of Kawabata is made using a method similar to the method of the instant invention, one of ordinary skill in the art would expect the steel of US 7,806,993 in view of Kawabata to inherently have a similar amount of precipitated W and a similar average thermal expansion coefficient between 20°C and 800°C.

Response to Arguments

9. Applicant's arguments filed September 15, 2010 have been fully considered but they are not persuasive.

Arguments are summarized as follows:

a. W is not an indispensible element according to Kawabata. In sharp contrast, W is an indispensible element to the Applicants as recited in Claim 13. W is merely an optional element in Kawabata and, out of 101 examples in Kawabata, there is only one example (No. 86 in Table 4) which contains W. However, the amount (W :1.5%) is still far outside the range of W content (2.05 to 6.0%) specified by Claim 13.

b. Kawabata relates to stainless steel sheets used as building materials, materials for automobiles, materials for chemical plants and also relates to a process for the production of stainless steels containing extremely low amounts of C, S, and O, in particular, having improved corrosion resistance compared to the conventional steel sheets without trimming the surface of the steel sheet after annealing-pickling. On the other hand, the Applicants disclose and claim a ferritic Cr-contained steel having a low thermal expansion coefficient suitable for applications in which a heat cycle is repeated between high temperature and low temperature, including exhaust system members of an automobile. To achieve the effect of low expansion coefficient, there is specified a hot-rolled sheet annealing temperature 950 to 1150°C and a finish annealing temperature of 1020 to 1200°C. In sharp contrast, Kawabata merely teaches annealing in a manner according to ordinary methods. Hence, no concrete annealing temperature is disclosed. Also, in Kawabata, there is no disclosure about the relationship between the amount of precipitated W and the thermal expansion coefficient.

c. The attached Fig. A comprises the Applicants' Fig. 1 to which data of examples in the Applicants' specification is further added. By controlling the amounts of added W and precipitated W so that the amounts will be within the blue range, it is possible to achieve an average thermal expansion coefficient of less than $12.6x10^{-6}$ at a temperature between 20°C and 800°C. This is completely unexpected from Kawabata. Therefore, even assuming that the amount of precipitated W of an example (No. 86 in Table 4) is 0.01%, this is still outside the Applicants' range in Claim 13 as shown in Fig. A.

d. Attached Fig. B includes data of precipitated W≤0.01% plotted and shows that when the amount of added W is 2% or more, there is obtained an average thermal expansion coefficient of less than $12.6x10^{-6}$ at a temperature between 20°C and 800°C. In other words, it is understood that an average thermal expansion coefficient of less than $12.6x10^{-6}$ at a temperature between 20°C and 800°C can hardly be obtained with the steel (No. 86 in Table 4) of the Examples of Kawabata.

e. Attached Fig. C includes data of added W=about 3% is plotted and there is shown that when the amount of precipitated W is 0.1% or less, there is obtained an average thermal expansion coefficient of less than $12.6x10^{-6}$ at a temperature between 20°C and 800°C. The aforesaid effect was not known and is completely unexpected.

f. Kawabata discloses an annealing temperature in a temperature ranges as wide as 700 to 1300°C. However, precipitated W is simply not controlled. Also,

in the examples of Kawabata, three types of hot-rolled sheet annealing were performed and when annealing is conducted at 850°C for 5 hours, precipitation in the form of the Laves phase occurs conspicuously and re-melting by subsequent cold-rolled annealing becomes impossible. In sharp contrast, as recited in Claim 13, W is inevitably precipitated by hot-rolled sheet annealing and re-melted by controlling the cold-rolled sheet annealing conditions. To achieve the foregoing, a condition which is different from ordinary methods needs to be selected. Further, in a cooling process of cold-rolled sheet annealing, passing through a region of precipitation temperature is inevitable as in the case of hot-rolled sheet annealing. Nonetheless, because the sheet thickness of a cold-rolled sheet is small and the necessary time for passing through the precipitation temperature region is limited to a short period of time, precipitation of W does not occur conspicuously.

Examiner's responses are as follows:

a. The scope of Kawabata is not limited to the specific embodiments it teaches. See MPEP 2123. Therefore, the Examiner maintains the position set forth in the above rejections that since the claimed compositional ranges either overlap or are within the ranges disclosed by Kawabata, a prima facie case of obviousness exists and Applicant has not overcome this prima facie case.

b. Kawabata is not required to teach the same benefits or solve the same problem as the instant invention. See MPEP 2144 IV. Furthermore, the fact that the claimed ferritic Cr-contained steel is used for applications in which a heat

cycle is repeated between high temperature and low temperature is not recited in the instant claims is an intended use of the claimed product. The ferritic Cr-contained steel of Kawabata is analogous prior art because the intended use of the steel of Kawabata is materials for automobiles which could include exhaust system members of an automobile as recited in the instant specification. Therefore, it would have been obvious to one of ordinary skill in the art that the steel of Kawabata is applicable to the instant claimed steel. As discussed in the above rejection, col. 6 line 63-col. 7 line 5 of Kawabata teaches that the final annealing temperature is 700°C-1300°C which overlaps with the temperature range recited in the instant claims.

c. In regards to Figs. A-C, the arguments of counsel cannot take the place of evidence in the record and must be supported by an appropriate affidavit or declaration. See MPEP 2145 I. In addition, Fig. A does not demonstrate the criticality of either the added W% or the precipitated W% by comparing, for example, a steel with 0.004% precipitated W to a steel with 0.005% precipitated W and a steel with 0.11% precipitated W to a steel with 0.1% precipitated W. Furthermore, as discussed above, the scope of Kawabata is not limited to the specific embodiments it teaches. See MPEP 2123. Therefore, in the absence of factual evidence to the contrary, the Examiner maintains the position set forth in the above rejection that since the composition of the ferritic Cr-contained steel of Kawabata overlaps with the composition of the steel of the instant invention and since the steel of Kawabata is made using a method similar to the method of the

instant invention, one of ordinary skill in the art would expect the steel of Kawabata to inherently have a similar amount of precipitated W and a similar average thermal expansion coefficient between 20°C and 800°C. See MPEP 2112.

d. Fig. B, which is not considered factual evidence as discussed above, does not demonstrate the criticality of the added W% by comparing, for example, a steel with 2.04% added W to a steel with 2.05% added W and a steel with 6.01% added W to a steel with 6.0% added W. Furthermore, as discussed above, the scope of Kawabata is not limited to the specific embodiments it teaches. See MPEP 2123. Therefore, in the absence of factual evidence to the contrary, the Examiner maintains the position set forth in the above rejection that since the composition of the ferritic Cr-contained steel of Kawabata overlaps with the composition of the steel of the instant invention and since the steel of Kawabata is made using a method similar to the method of the instant invention, one of ordinary skill in the art would expect the steel of Kawabata to inherently have a similar amount of precipitated W and a similar average thermal expansion coefficient between 20°C and 800°C. See MPEP 2112.

e. Fig. C, which is not considered factual evidence as discussed above, and does not demonstrate the criticality of precipitated W% by comparing, for example, a steel with 0.004% precipitated W to a steel with 0.005% precipitated W and a steel with 0.11% precipitated W to a steel with 0.1% precipitated W. Furthermore, as discussed above, the scope of Kawabata is not limited to the

specific embodiments it teaches. See MPEP 2123. Therefore, in the absence of factual evidence to the contrary, the Examiner maintains the position set forth in the above rejection that since the composition of the ferritic Cr-contained steel of Kawabata overlaps with the composition of the steel of the instant invention and since the steel of Kawabata is made using a method similar to the method of the instant invention, one of ordinary skill in the art would expect the steel of Kawabata to inherently have a similar amount of precipitated W and a similar average thermal expansion coefficient between 20°C and 800°C. See MPEP 2112.

f. The scope of Kawabata is not limited to the specific embodiments it teaches. See MPEP 2123. Furthermore, Kawabata is not required to teach the same benefits or solve the same problem as the instant invention such as the control of precipitated W. See MPEP 2144 IV. Applicant has not submitted factual evidence to demonstrate that the steel of Kawabata would not have a similar amount of W even though it is made by a similar method or to demonstrate the criticality of the instant method. Therefore, in the absence of factual evidence to the contrary, the Examiner maintains the position set forth in the above rejection that since the composition of the ferritic Cr-contained steel of Kawabata overlaps with the composition of the steel of the instant invention and since the steel of Kawabata is made using a method similar to the method of the instant invention, one of ordinary skill in the art would expect the steel of Kawabata to inherently have a similar amount of precipitated W and a similar

average thermal expansion coefficient between 20°C and 800°C. See MPEP 2112.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAITLIN FOGARTY whose telephone number is (571)270-3589. The examiner can normally be reached on Monday - Friday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ Roy King/
Supervisory Patent Examiner, Art Unit 1733

CF